Implant dentistry without peri-implantitis

An Interview with Marco Waldner, CEO of Zircon Medical Management AG | Patent™, Switzerland

No peri-implantitis after nine years—in a recent independent long-term study, the two-piece Patent Dental Implant System has challenged established definitions of implant success.[1] In this interview, Marco Waldner, founder and CEO of Zircon Medical, the manufacturer of Patent, discusses the study results and the importance of thinking long term in implant dentistry.

How can the study's findings of no peri-implantitis with the two-piece Patent™ be explained?
The development of the Patent™ Dental Implant System was driven by a singular objective: to prevent biological complications such as peri-implantitis from occurring. This is the differentiating factor that sets us apart from other manufacturers. The culmination of our efforts has now been validated through a rigorous scientific study, revealing a complete absence of peri-implantitis, low rates of peri-mucositis, and minimal marginal bone loss.

How does Patent™ accomplish this feat?
In developing this implant system, we followed sound reasoning, considering where peri-implantitis originates—in the soft tissue—and what triggers it—bacteria. Therefore, our primary aim was to establish exceptionally robust soft-tissue attachment so that bacteria simply cannot penetrate past the implant into the tissue. While zirconia is renowned for its favourable soft-tissue response compared with other materials, this property alone does not prevent peri-implantitis. The key lies in optimising the surface quality of the transmucosal portion of the implant for strong and sustained adhesion of soft tissue. We've achieved exactly this with our exclusive Patent™ ceramic, which boasts a unique material composition and is processed using a patented production method.

Fig. 1: The Patent™ Dental Implant System was developed with the goal of avoiding biological late-term complications and ensuring long-term performance.

Can you explain how the Patent™ System works?
The system combines three pivotal components within a comprehensive treatment concept aimed at promoting long-term healthy tissue and sustained performance. Beyond the aforementioned transmucosal requirements, we recognised that we must avoid a microgap at the critical crestal bone level. Research unequivocally indicates that such a microgap significantly amplifies the risk of biological late-term complications, including peri-implantitis. The logical deduction: Patent™ needed to have a soft-tissue-level design and be made entirely of zirconia.

The endosteal implant body, purposefully designed to respect biology, facilitates atraumatic insertion and healing. The Patent™ concept also involves an innovative prosthetic approach: A glass fibre post with dentine-like properties serves as the abutment and attenuates the masticatory forces and transfers them to the implant and the bone favourably. This solution perfectly complements the material properties of the entire system, ensuring long-term stability, sealing against bacteria and offering complete reversibility compared with other connections.

Implants made of ceramic, however, have had mixed results. In the past, they were prone to either fracture or osseointegration issues. Does Patent™ have these problems too?
If one doesn't respect the specific material properties of zirconia, problems can occur. From experience, we know that one cannot simply apply existing geometries or surface treatment methods to a different material and expect the same results. This is precisely why other manufactur-

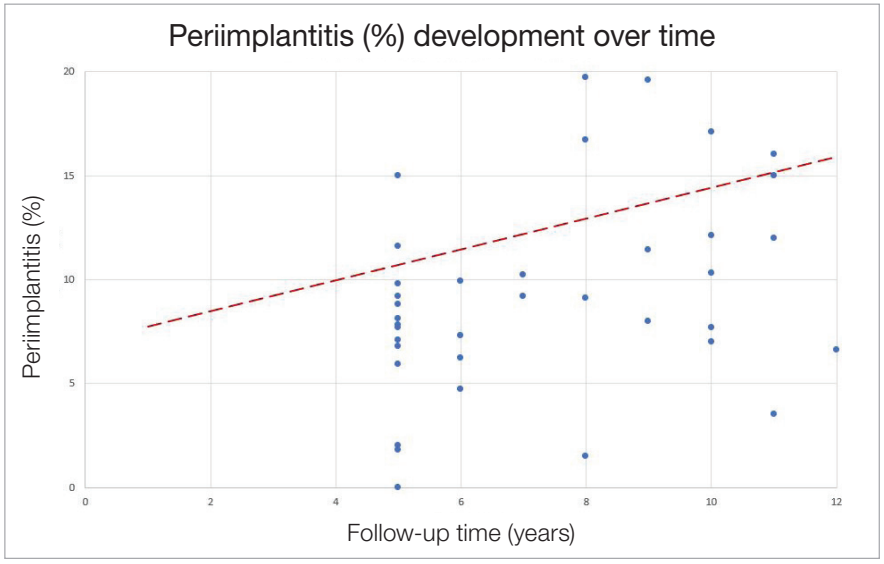

Fig. 2: An analysis of 53 studies suggests that peri-implantitis increases with the time the respective implants have been in function.[2–54] Blue = documented peri-implantitis (%) in the evaluated studies; red = trend line of the collected data.

ers tend to deliver worse results with their zirconia implants than with their titanium systems.

In the case of Patent™, we developed an entirely new and highly complex manufacturing process that expertly balances predictable osseointegration with exceptional fracture resistance. Furthermore, the Patent™ System comprises meticulously designed and harmonised individual components, which together yield exceptional biological, aesthetic and functional long-term results.

You've demonstrated the absence of peri-implantitis in one study, whereas other manufacturers have conducted numerous studies. Couldn't it just have been luck this one time?
One could interpret it in a different way: Other manufacturers weren't able to show that peri-implantitis does not occur with their systems, even in hundreds of studies. The independent study conducted on Patent™ at the Heinrich Heine University Düsseldorf is the only study that has demonstrated no peri-implantitis—even over a period of nine and a half years.

Who is your typical user?
Patent™ caters to practitioners seeking an implant system that not only performs well over an extended period, but also sustains the health and stability of the hard and soft tissue. Those prioritising reliable tissue integration, sustained soft-tissue health, no bone loss and aesthetically pleasing outcomes inevitably turn to our solution.

Zircon Medical, the company behind Patent™, is now an independent entity. How do you distinguish yourselves amidst the industry giants?
We follow a clear strategy of zero peri-implantitis. This singular focus sets us apart from the competition. Peri-implantitis rates have been alarming for quite some time now, particularly if one considers that there is not a single therapeutic approach able to resolve existing peri-implantitis. Therefore, the goal must be to minimise the risk of peri-implantitis or to prevent it altogether. As the nine-year study on Patent™ has conclusively demonstrated, this goal is indeed achievable. Plus, hundreds of Patent™ users have witnessed this long-term treatment success in their daily practice too.

Literature

about the interviewee

Zircon Medical founder and CEO **Marco Waldner** on the results of the independent long-term study at the Heinrich Heine University Düsseldorf in Germany:[1] "With Patent™, we are pursuing a zero peri-implantitis strategy."

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